

THIS IS THE

# POWER OF CUMMINS

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Cummins Inc.

Public



FOR  
A WORLD  
THAT'S  
ALWAYS ON™

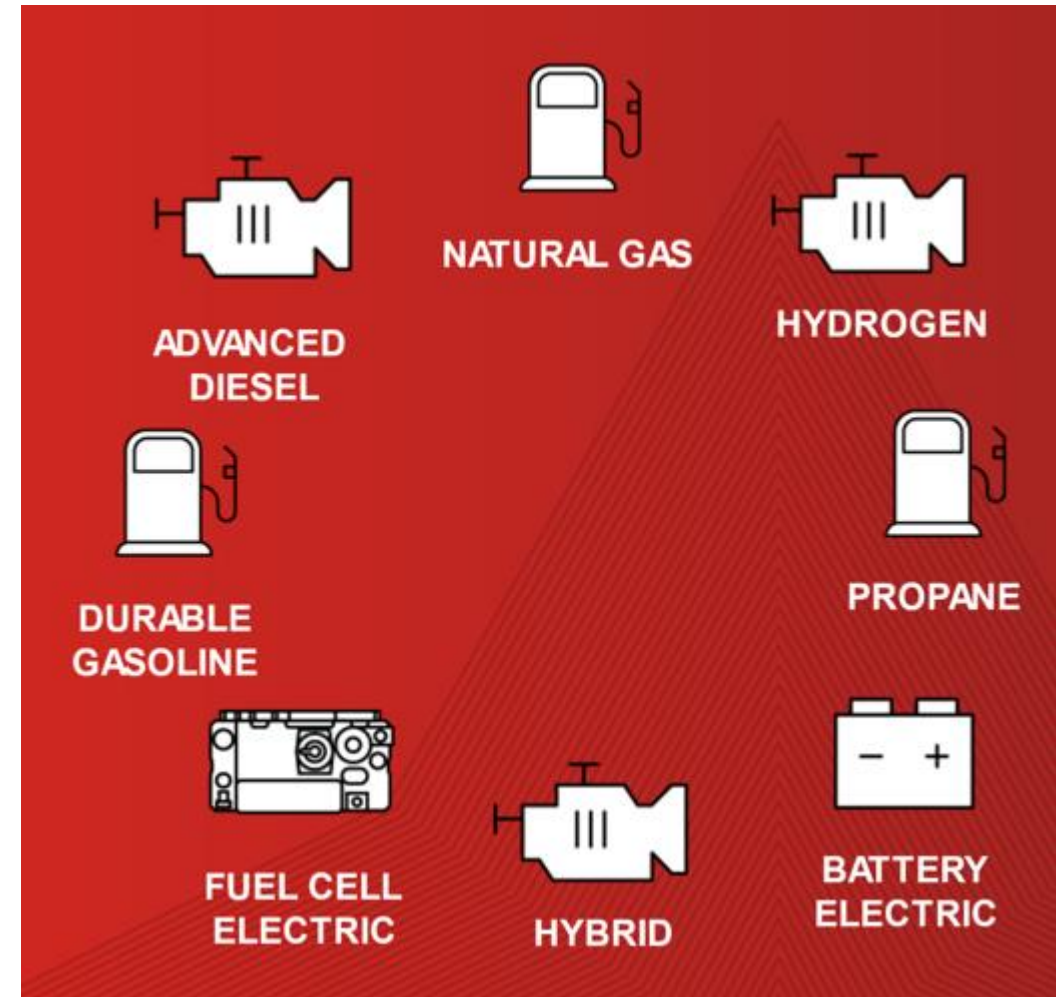
Cummins

# *Accelerating toward* **Destination Zero**

Cummins will continue to innovate and invest as we advance along the path to zero, but we can't do it alone.

- Action is required today.
- Progress requires partnership.
- Technology leadership is critical.

## ENERGY SOURCES



## POWER SOLUTIONS

# CUMMINS AND NATURAL GAS POWER:

Mature, proven and least disruptive alternative power technology available today

Cummins has been building natural gas engines since 1986	Cummins is the <b>only manufacturer</b> in the U.S. developing and producing heavy and medium-duty commercial renewable natural gas engines; near zero-emissions		
Cummins natural gas engines operate on renewable, or fossil natural gas stored on-board as <b>compressed natural gas (CNG)</b> or <b>liquid natural gas (LNG)</b>	Most fleets operating natural gas engines do so for <b>8-12 years of service</b>	<b>98% of all class 8 tractors</b> with ISX12N engines are <b>day cabs</b>	

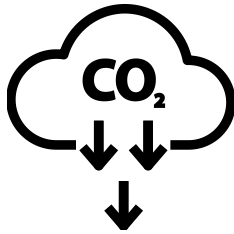
Majority of private fleets switching to RNG power are advancing a **corporate environmental sustainability plan to reduce corporate carbon or GHG** liabilities

Source: Bloomberg ESG index or Climate Action 100+ Group

# ON-HIGHWAY TRUCKS AND FLEETS

THE BACKBONE OF U.S. ECONOMY

1



**25% GHG contribution**  
within the transportation  
sector

2



**~70% of U.S. goods**  
(by tonnage) are transported  
by trucks

**~\$1 trillion freight revenue**  
from trucking

3



**~10M trucks**  
transport goods within U.S.

**~750k fleets**  
that own or lease these trucks

- 95% operate <10 trucks
- 99% operate <100 trucks



# Why NG for Trucking



NEAR ZERO-CARBON



CAN GET THE JOB DONE



FAST REFILL TIME



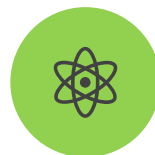
AVAILABLE TODAY



GLOBAL FOOTPRINT AND EXPERIENCE



LOCAL RESILIENCE



ENERGY INDEPENDENCE



FUEL TRANSPORTED THROUGH PIPELINE



FUELING INFRASTRUCTURE  
~ 1600 STATIONS



FUEL COST



PERMITTING AND REGULATIONS

 Tailwinds

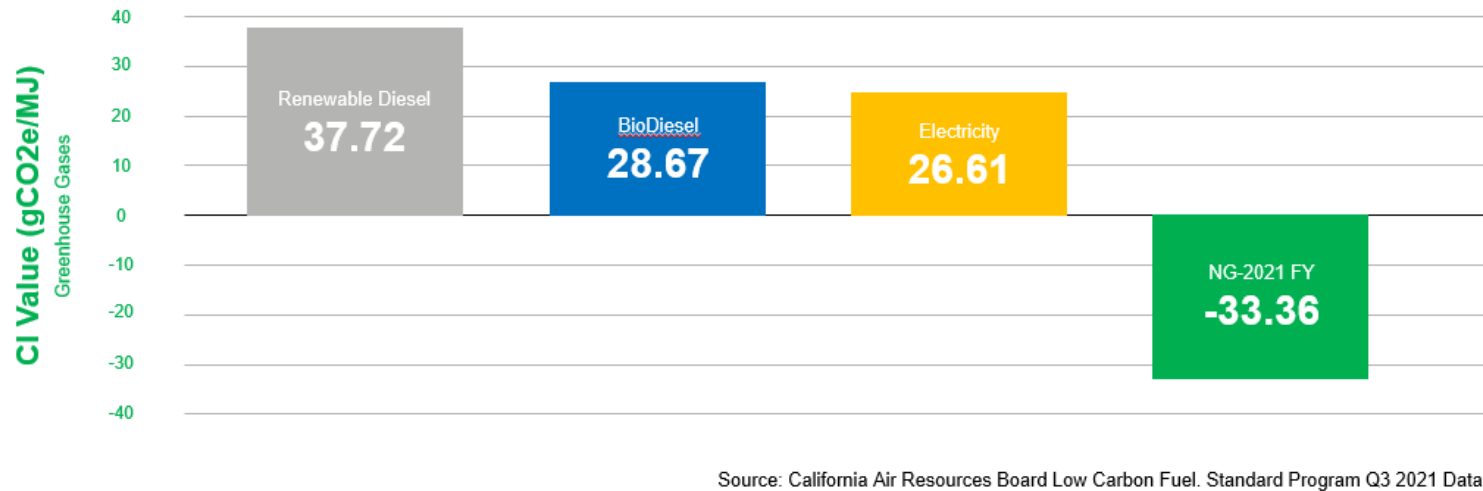
 Barriers

Public



# RNG IS ALREADY THE MOST USED FORM OF CNG

## IT IS ALSO CARBON NEGATIVE



**64%** of CNG used in the U.S.

**98%** of CNG used in California

100% of the natural gas used for California transportation and reported in the LCFS is carbon negative (-33.36 gCO<sub>2</sub>e/MJ)

Natural gas vehicles operating in California provide the greatest GHG emissions benefits compared to all other transportation fuels

Natural Gas Vehicles America, "Decarbonize Transportation with Renewable Natural Gas," May 2022, accessed at <https://ngvamerica.org>.

# CUMMINS NATURAL GAS ENGINES

**B6.7N™**



**EPA only 2024**

**L9N™**



**EPA & CARB24**

**ISX12N™**



**EPA only 2024**

**X15N™**



**Coming in 2024  
EPA & CARB24**

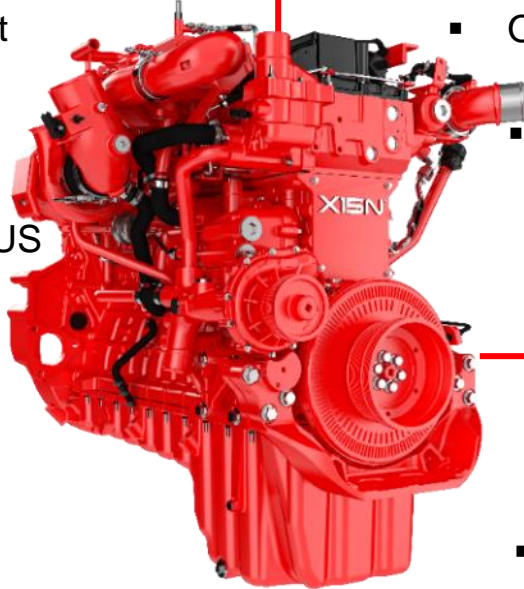
Certified Near Zero Optional Low NOx 0.02 g/bhp-hr





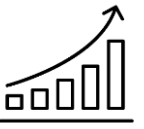
## Reliable and Durable

- Diesel-like power, torque and performance<sup>1</sup>
- Built on 30+ years of natural gas experience
- Integrated powertrain for a full Cummins solution
  - Cummins engine, aftertreatment and fuel delivery system
- Full OE network and Cummins service channel support
- Known maintenance practices
  - Simple aftertreatment
  - Familiar engine tech
- X15N has over a Billion miles globally and ~ Million in US
  - Reliability improvements over ISX12N



**X15N**<sup>™</sup>

## Scalable



- Least disruptive alt fuel technology
- 1-to-1 vehicle replacement for diesel
  - Do the same jobs with same number of trucks & drivers
- Established supply chain for product production
- Over 800 + public stations
  - Behind the fence refueling options
- Known technology
  - Familiar engine architecture
  - Incremental technician training



## Commercially Viable

- Over 1,000-mile range for line-haul applications<sup>2</sup>
- Lower incremental acquisition cost for the vehicle compared to BEV and fuel cell
- Multi-shift operation capable
  - No additional downtime
- Stable, low-cost fuel means price predictability
- Fast fill refueling time similar to diesel
- Natural Gas is available NOW
  - 70,000+ vehicles operating in North America today

## Sustainability



- Best well-to-wheel GHG reduction option
- Net carbon negative solution when using RNG
- ~ 750 new RNG production projects coming online<sup>3</sup>
- Up to 10% fuel economy & GHG improvements<sup>4</sup> over ISX12N
- CARB and EPA emissions solution for '24 and beyond

<sup>1</sup> Driver education needed   <sup>2</sup> Dependent on tank configuration, driving behavior

<sup>3</sup> Includes sites that are currently operational, under construction or planned – NGV coalition website

<sup>4</sup> Based on testing performed under controlled conditions



